

(31)
Claim 1
Sub 1
1. (Currently Amended) A method for streaming scalable video including base layer data and enhancement layer data, comprising the steps of:
2 transmitting the base layer data for a given interval within a plurality of time intervals for a
3 single video stream;
4
5 determining if a loss of bandwidth has occurred in during the given interval;
6
7 selecting a predetermined number of frames to distribute the loss of bandwidth over;
8
9 calculating a reduced amount of enhancement layer data to transmit in the predetermined
number of frames; and
transmitting the reduced amount of enhancement layer data in during the given interval.

1 2. (Previously Amended) The method according to claim 1, further comprising:
2 transmitting non-enhancement layer data during the given interval.

1 3. (Unchanged/Original) The method according to claim 1, wherein the calculating step is performed
2 so that the loss of bandwidth is distributed evenly over the predetermined number of frames.

1 4. (Currently Amended) The method according to claim 1, further comprising the steps of:

231
2 determining if ~~there is still space~~ bandwidth remains in the given interval; and

3 ~~if bandwidth remains in the given interval,~~ transmitting at least a portion of the reduced

4 amount of enhancement layer data from a second given interval in the given interval.

1 5. (Unchanged/Original) The method according to claim 1, further comprising the steps of:

2 determining if the pre-determined number of frames has expired;

3 determining if any left-over enhancement layer data exists;

4 selecting a second predetermined number of frames to distribute the left-over enhancement

5 data over;

6 calculating a second reduced amount of enhancement layer data to transmit in the second

7 predetermined number of frames; and

8 transmitting the second reduced amount of enhancement layer data in a second given interval.

1 6. (Unchanged/Original) The method according to claim 1, wherein the enhancement layer data has

2 a fine grain scalability structure.

1 7. (Currently Amended) A method for streaming scalable video including base layer data and
2 enhancement layer data, comprising the steps of:

3 transmitting the base layer data for a given interval within a sequence of time intervals over
4 which the scalable video is streamed;

5 selecting a predetermined number of frames if a loss of bandwidth has occurred in the given
6 interval;

7 distributing the loss of bandwidth over the predetermined number of frames to produce a
8 reduced amount of enhancement layer data; and

9 transmitting the reduced amount of enhancement layer data in the predetermined number of
10 frames during the given interval.

1 8. (Unchanged/Original) The method according to claim 7, wherein the distributing step is
2 performed so that the loss of bandwidth is distributed evenly over the predetermined number of
3 frames.

1 9. (Currently Amended) A memory medium including code for streaming scalable video including
2 base layer data and enhancement layer data, the code comprising:

(§1) a first transmitting code to transmit the base layer data for a given interval within a series of

(§4) time intervals over which the scalable video is transmitted;

5 a determining code to determine, during transmission of the scalable video, if a loss of
6 bandwidth has occurred in the given interval;

7 a selecting code to select a predetermined number of frames to distribute the loss of
8 bandwidth over;

9 a calculating code to calculate a reduced amount of enhancement layer data to transmit in the
10 predetermined number of frames; and

11 a second transmitting code to transmit the reduced amount of enhancement layer data in the
12 given interval,

13 wherein the reduced amount of enhancement layer data transmitted during the given interval
14 varies from a normal amount of enhancement layer data transmitted during other intervals within the
15 series.

1 10. (Currently Amended) An apparatus for streaming scalable video including base layer data and
2 enhancement layer data, comprising:
3 a memory which stores executable code; and
4 a processor which executes code stored in the memory so as to (i) transmit the base layer data
5 for a given interval within a plurality of time intervals over which a scalable video stream is
6 transmitted, (ii) determine if a loss of bandwidth has occurred in the given interval, (iii) select a
7 predetermined number of frames within the given interval over which to distribute the loss of
8 bandwidth over, (iv) calculate a reduced amount of enhancement layer data to transmit in the
9 predetermined number of frames to accommodate the loss of bandwidth, and (v) transmit the reduced
10 amount of enhancement layer data in the given interval.

1 11. (Currently Amended) An apparatus for streaming scalable video including base layer data and
2 enhancement layer data, comprising:

B3
C4
means for transmitting the base layer data for a given interval within a plurality of time
intervals;

5 means for determining, during the given interval, if a loss of bandwidth has occurred in the
6 given interval;

7 means for selecting a predetermined number of frames to distribute the loss of bandwidth
8 over;

9 means for calculating a reduced amount of enhancement layer data to transmit in the
10 predetermined number of frames to accommodate the loss of bandwidth; and

11 means for transmitting the reduced amount of enhancement layer data [in] during a remainder
12 of the given interval.

1 12. (Previously Added) The method according to claim 1, wherein the predetermined number of
2 frames over which the loss of bandwidth is distributed comprises frames within the given interval.

1 13. (Previously Added) The method according to claim 1, wherein the step of calculating a reduced
2 amount of enhancement layer data to transmit in the predetermined number of frames further
3 comprises:

*B1
C2
C3
C4
C5*
4 calculating an amount of enhancement layer data accommodating the loss of bandwidth
5 during the given interval.

1 14. (Previously Added) The method according to claim 1, wherein the step of determining if a loss
2 of bandwidth has occurred in the given interval further comprises:

3 determining a number of bits during the given interval consumed by transmission of non-
4 enhancement layer data.

1 15. (Previously Added) The method according to claim 1, wherein the step of determining if a loss
2 of bandwidth has occurred in the given interval further comprises:

3 determining a number of bits during the given interval lost due to packet loss, noise, or
4 bandwidth variation.

1 16. (Previously Added) The method according to claim 1, wherein the step of calculating a reduced
2 amount of enhancement layer data to transmit in the predetermined number of frames further
3 comprises:

*B1
Cont*
4 calculating a number of lost bandwidth bits to be allocated to each of the predetermined
5 number of frames.

Please add the following new claims:

1 17. (Newly Added) The method according to claim 1, wherein the step of transmitting the reduced
2 amount of enhancement layer data in the given interval further comprises:

3 transmitting a first reduced amount of enhancement layer data in first and last frames of the
4 predetermined number of frames; and

5 transmitting a second reduced amount of enhancement layer data different from the first
6 amount in a frame between the first and last frames of the predetermined number of frames.

1 18. (Newly Added) The method according to claim 1, wherein the steps of determining if a loss of
2 bandwidth has occurred during the given interval, selecting a predetermined number of frames to
3 distribute the loss of bandwidth over, calculating a reduced amount of enhancement layer data to
4 transmit in the predetermined number of frames, and transmitting the reduced amount of
5 enhancement layer data during the given interval cumulatively result in dynamic adaptation of the
6 scalable video stream to temporary reductions in available bandwidth during transmission of a
7 portion of the scalable video stream.

*B1
Cont'd*

1 19. (Newly Added) The method according to claim 1, wherein the step of selecting a predetermined
2 number of frames to distribute the loss of bandwidth over further comprises:
3 selecting a predetermined number of remaining frames to be transmitted during the given
4 interval.

1 20. (Newly Added) The method according to claim 1, further comprising:
2 following transmission of the reduced amount of enhancement layer data in the
3 predetermined number of frames, resuming transmission of a non-reduced amount of enhancement
4 layer data in frames subsequent to the predetermined number of frames.